Anemia

Who to Test
Recommend for all initial and revisit female examinations if history suggests excessive menstrual blood loss. A hematocrit or hemoglobin should be performed within 1 year of a copper IUD insertion. To roughly convert from hematocrit to hemoglobin divide by 3.

Normal Hemoglobin and Hematocrit Values (Harrison's Internal Medicine Textbook)

Age/Sex	Hemoglobin, g/L	Hematocrit, %
Adolescents	130	40
Adult men	160 (±20)	47 (±6)
Adult menstruating women	130 (±20)	40 (±6)
Adult non-menstruating women	140 (±20)	42 (±6)
Pregnancy (3rd trimester)	120 (±20)	37 (±6)

To convert Hgb g/l to mg/dL divide by 10, for example 130 g/l equals 13 mg/dL.

Evaluation
- Review nutrition and menstrual history.
- Check stool for occult blood (Hemoccult) on rectal exam at pelvic if no other etiology suggested by the history or age greater than 40.
- Inquire about other bleeding, bruising, GI problems, etc.
- Inquire if ethnic group or family history of sickle-cell or thalassemia.

Management
- If marginal anemia, give the **How We Get the Iron We Need Handout** and recommend a once-a-day vitamin with iron or a prenatal vitamin, perhaps consider a hormonal contraceptive to reduce menses.

- If known to be iron deficient and moderately anemic, prescribe ferrous gluconate or sulfate 320 mg (5 grains) three times daily after meals for three months. The stool should become dark colored as evidence she is taking the pills. Counsel the client that iron tablets are very dangerous if ingested by children, only 10-15 pills can kill a child. Repeat the test in one month. If improved, continue iron for three more months to replenish iron stores. If not improved, consider bone marrow suppression, inflammatory block, or hemoglobinopathy and refer to primary care provider for further evaluation.

- If <30% or ≤10 mg/dl, an anemia work-up is needed prior to iron prescription unless already done because iron tablets will interfere with the lab results and cause morbidity in some conditions like thalassemia. If it is not possible for the client to see another provider, order a CBC, ferritin and reticulocyte count, have the client return in one week for the results, and consult the Family Planning Medical Director. If the results are consistent with iron deficiency, prescribe therapeutic iron and retest in 1 month. If the test result has not improved, then referral for further work-up is mandated.

- **Iron should not be recommended for males or non-menstruating women** without consultation with a physician or primary care provider.

- If **an elevated Hgb** is detected referral is indicated. Hereditary hemochromatosis (excessive iron absorption) can cause cirrhosis, heart failure, and even death. Approximately 1 in 10 people carry one gene but only 1 in 200 to 400 have both genes. If it is diagnosed early before iron storage excess, it is easily treated with blood removal or phlebotomy. If this diagnosis is suspected because the Hgb can be normal, check a fasting ferritin and transferrin saturation too and if abnormal consult the Family Planning Medical Director.

Bone Health

Why is bone health important?
In the United States there are an estimated 1.3 million fractures from osteoporosis annually. Most fractures occur later in life and while low bone density is an important risk factor the propensity to fall is another important risk factor for fracture. About half of these fractures occur in vertebral bones and lead to a loss of stature or if severe, deformation of the spine. But it is hip fracture which leads to significant disability and mortality, with 2% of women dying during initial hospitalization and up to 10% within a year of the event (Endo 2005). Most of these fractures, 95%, are the result of a fall (Stevens 2000).

The lifetime risk for a hip fracture for the average white woman in the U.S. is estimated to be 17.5% at the age of 50, compared to only 5% for men (Surgeon General 2004). In women under age 35, only 2 per 100,000/yr will be hospitalized for hip fracture (Surgeon General 2004). Hip fracture risk increases rapidly with age to a worldwide rate of 6 per 1000 women at age 80 and about 15 per 1000 at age 90 (Melton 1993). These rates of fracture are thought to be increasing in the U.S. population as risk factors such as inactivity and age increase.

What is the structure of bone and how does it change with age?
There are two components to bone structure, cortical and trabecular. Cortical bone makes up 75% of the total bone mass and is the dense bone forming the outer shell of the long bones while trabecular bone accounts for less of the mass but most of the bone volume because it is the spongy interior structural portion of a bone. Bone is constantly remodeled and one can think of it as a balance between resorption and formation until the age of 30 when bone density peaks. After that time approximately 0.4% of bone mass is lost every year in both men and women.

Several factors contribute to women's higher risk for fractures. In general women with their smaller frames have lower bone densities compared to men, and women typically live longer and will have more time to continue to lose bone density and/or to experience a fall. In addition, women at menopause will have a rapid loss of approximately 6% of their total bone density within several years.

Definitions of abnormal bone density
Loss of bone density can result in a condition called ***osteopenia*** or low bone density which is typically not treated but can be a marker for the later development of osteoporosis. ***Osteoporosis*** is characterized by a further loss of density and a deterioration of microscopic architecture such that the bones become fragile and break easily. It has been estimated approximately 30% of American women over 50 have osteoporosis using the current WHO standards (Marshall 1996). By the age of 80, 90% of women have either osteopenia or osteoporosis although it may be the risk of falling that is the greatest risk factor for fracture at this point (Melton 1993).

How is bone density measured?
Bone density measurements can predict the risk of fracture but cannot identify individual people who will have a fracture (Marshall 1996). Bone density can be measured by the DEXA (dual energy x-ray absorptiometry) which involves radiation exposure similar to a mammogram and one tenth that of a chest x-ray. The DEXA scan takes approximately 20 minutes and involves positioning on a table in the supine and side position in a patient gown while the measurements are made and then later read by a specialist.

The heel ultrasound is another way to estimate bone density. It involves sound waves rather than radiation and is a tenth of the cost of a DEXA examination. However any peripheral (wrist or heel) measurement may not correlate to a central (spine or hip) measurement, especially if physical activity is either low or high. It is important to realize that DEXA and ultrasound machines themselves can vary, and follow up measurements should be conducted using the same machine if possible. In addition these individual measurements can vary such that it is not usually recommended to measure at intervals less than 2 years. These bone density measurements cannot assess bone quality and it is possible that the quality of the bone and the turnover rate may be as important as bone density for predicting who will sustain a fracture from a fall (Wilkin 1999). Urine or blood tests to measure metabolic markers for bone remodeling can be used to monitor the response to osteoporosis treatment.

How is a bone density reported?
The results of these tests are reported as bone density using a gram of bone per centimeter squared for units for the bone that was measured. The density of a bone can vary such that a wrist bone density (0.45 gm/cm^2) is not the same as the density of the hip or spine bone (1.3 gm/cm^2) in the same person. Age and gender are also very important when comparing bone density. A young woman might have a spine bone density of 1.045 gm/cm^2 and a hip density of 0.924 gm/cm^2 (Scholes 2002) while a post menopausal woman could have a spine density of 0.93 gm/cm^2 (McClung 1998) using similar DEXA machines. This means it would be difficult to know what bone density alone means.

What is usually reported is a comparison of the patient's bone density with the density found in a young normal population of the same gender; this is called a ***T score***. Think of the T score as a standard deviation which is arrived at by a comparison of an individual to the average value of the measured population. For example if the normal hip density for a 20-29 year old white female is 0.942±0.123 gm/cm^2 then if the density for an individual is 0.942 gm/cm^2 then she has a T score of 1.0 which is a very good score. But if she has a density of 0.696 gm/cm (which is the mean minus 0.246 gm/cm^2 or 2 standard deviations lower than the mean bone density for this population) this will correspond to a T score of -2.0 or two standard deviations below the mean value although this is still not osteoporosis as described below.

What is a normal bone density score?
A T score of -1.0 or greater is defined as normal. Osteopenia or low bone mass is present with a T score between -1 and -2.5 and osteoporosis if the T score is -2.5 or lower. There are a number of on-line calculators for estimating fracture risk using these scores and risk factors (iscd.org 2005 and Ott 2005).

As estrogen declines it will trigger bone loss
Any physiologic state which induces a decline in estrogen such as natural or surgical menopause will induce a decrease in bone resorption and an increase in bone turn over typically leading to a loss of bone density. During menopause women will usually lose up to 6%

of their bone density, although peri-menopausal women who had been using DMPA did not lose further bone density as they had already lost this estrogen sensitive component (WHO 2004). A 6% loss of bone density is similar to the loss seen with other hypoestrogenic states like lactation. The bone density loss with lactation occurs regardless of calcium intake (Kalkwarf 1997), is reversible, and a history of lactation is not associated with an increase in osteoporosis in cross-sectional studies (Polatti 1999 and Sinigaglia 1996).

With OC use the ovary diminishes estradiol production and the bones then rely on the ethinyl estradiol component of the OC. However, women using the OC typically have bone density measurements similar to women not using hormonal contraceptives (Berensen 2004). A population-based case control study in Sweden demonstrated a risk reduction of 25% for hip fracture with OC use after the age of 40 in healthy post-menopausal women even years from their OC use (Michaelsson 1999). It is possible that the lower OC or 20 mcg ethinyl estradiol dose OC formulations may not be as protective of bone density. It has also been suggested but unproven, that the progesterone component itself is important to bone growth (Prior 1990 and Gallagher 1990). For example, the use of the progesterone only OC during lactation ameliorated some loss in bone density (Caird 1994).

DMPA use and bone density measurement

After 2 years of DMPA use women will have lost up to 6% of their bone density (Scholes 2002 and 2005) and this bone loss can be reversed during DMPA use with estradiol supplementation (Cromer 2005). With DMPA use, loss of bone density of 6% or roughly 0.05 gm/cm^2 at the hip for example, translates to a half of a standard deviation and this degree of difference in a T score can increase the relative risk of fracture by 50%. Luckily during the use of DMPA this risk in women under 35 years of age is very small at 2 per 100,000 women per year so this increase to 3 per 100,000 is small and may only be measurable when combined with other risk factors such as extreme skeletal demands in young soldiers. In addition, just as with lactation, the bone density lost during DMPA use is typically regained within 3 years following cessation of DMPA exposure (Scholes 2002 and 2005). Post-menopausal women with a history of DMPA use have similar bone density compared to women never using DMPA (WHO 2004). It still remains a small possibility an adolescent with long-term DMPA use may not achieve the peak bone density she might have achieved if she had not been using DMPA (WHO 2004). Just as with any population there will be women in the lowest percentile for bone density and these women would be at the greatest risk from the additional loss of bone density with DMPA use.

Low bone density can predict fracture risk in post-menopausal women

In a cohort of women over age 65 volunteering for a bone density test, approximately 1 out of a 125 then experienced a hip fracture over the 1.8 years of observation and the risk for fracture doubled for each standard deviation of decrease in bone density measured at baseline (Cummings 1993). For example a woman with a hip bone density T score of -1.5 would have twice the risk of a hip fracture compared to a woman with a T score of -0.5. This risk also doubled for every increase of 10 years of age. The hip bone DEXA measurement was the best measurement to predict the risk of a hip fracture (Cummings 1993). These authors estimated if a 50 year old had a DEXA scan with a T score of -1.7 (in the lowest 10% for bone density) she then had a 25% risk of later hip fracture compared to another 50 year old in the top 90% for bone density who still had an 8% risk for hip fracture. Pointing out that bone density is not the only risk factor for fracture.

Problems with bone density measurements

Most of the literature about bone density has centered on older individuals since the preponderance of risk is in that population. In addition, while Asian populations may have less bone density this has not been associated with an increase in fracture risk uniformly and many of the "normal" populations may not be representative of ethnic or racial differences. It is not known exactly what heel density score in young women correlates with a hip bone density of less than 0.77 gm/cm^2 or a T-score of -1.7 which would correspond with the lowest 10th percentile for bone density.

A study correlating a bone density screening test result to clinical outcome has not been done in women using DMPA or the OC. It is not known if withholding DMPA from a woman with osteopenia would result in a reduction in fracture risk years later. It is difficult for young women to balance things like the risk of an unintended pregnancy or a blood clot if an estrogen containing contraceptive method is used against possibly increasing her later risk of fracture. Many of these hip fractures will not happen until 20 to 30 years after menopause and women identified at menopause to have osteopenia or osteoporosis can then undergo treatment at that time to increase their bone density and ameliorate this risk (McClung 1998).

Demographic and medical history risk factors for bone fracture

History of prior adult fracture from a fall or a fragility fracture (without trauma)*
Medical condition which would impair calcium or vitamin D absorption*
Medical condition with direct effects on bone metabolism such as hyperthyroidism*
Use of a medication known to have bone effects such as prednisone or anticonvulsants*
Early menopause (younger than 45) for any reason
History of prolonged amenorrhea due to hypoestrogenism of > 1year
Family history of osteoporosis especially hip fracture in a parent
Northern European race
Dementia, poor vision, or other conditions increasing the risk for falling
Low body weight (under 125 pounds or body mass index under 19
Poor nutrition such as low calcium intake
Smoking, alcoholism, and inadequate weight bearing activity

* these risk factors warrant bone density assessment and monitoring if DMPA were to be prescribed.

In summary
While it is now recognized to be important for women to have a bone density assessment at the age of 65 (ACOG 2004), it is unknown if there is any benefit to knowing sooner in an asymptomatic population without multiple risk factors. This is particularly unclear in pre-menopausal populations when bone loss from conditions like lactation or DMPA use are reversible and a treatment like bisphosphonates would not usually be recommended because of their teratogenicity.

It may make sense for a woman choosing to use DMPA to have a bone density assessment to see if she is in the lowest 10th percentile for bone density if that would change her decision to use an estrogen containing contraceptive method instead. Alternatively a woman without significant risk factors for osteoporosis who has decided that DMPA is the only method she can effectively use for contraception should not be denied access to DMPA just because she has not obtained a bone density assessment. It has not been determined that a single bone density assessment years before fracture risk is high will accurately predict risk or even if avoiding

DMPA can modify this risk for an individual woman. While it is generally accepted that adequate calcium and vitamin D intake, and weight bearing exercise are important for the development of strong healthy bones it is also true that the use of calcium supplementation has not been shown to prevent the bone loss measured with lactation (Kalkwarf 1997) and is unlikely to ameliorate the effects of DMPA.

All young women can benefit from screening for fracture risk factors, counseling about modifiable conditions, education about preventing falls, and advise that the use of DMPA and possibly low estrogen dose OC can decrease bone density, and referral for bone density screening if multiple risk factors and treatment such as a change in contraceptive method would be considered.

References:

American College Obstetricians and Gynecologists. Osteoporosis. ACOG Practice Bulletin Number 50, January 2004.

Berenson AB, Breitkopf CR, Gady JJ, Rickert VI, Thomas A. Effects of hormonal contracetion on bone mineral density after 24 months of use. Obstet Gynecol 2004;103:899-906.

Caird LE, Reid-Thomas V, Hannan WJ, Gow S, Glasier AF. Oral progestogen-only contraception may protect against loss of bone mass in breast feeding women. Clinical Endocrinology 1994;41:739-45.

Cromer B etal. Adolescents studied over 2 years with DMPA use randomized to 5 mg monthly estradiol injection vs placebo (article in press) Am J Obstet Gynecol 2005.

Cummings SR, Black DM, Nevitt MC, Browner W, Cauley J, Ensrud K, etal. Bone density at various sites for prediction of hip fractures. Lancet 1993;341:72-75.

Endo Y, Aharonoff GB, Zuckerman JD, Egol KA, Koval KJ. Gender differences in patients with hip fracture: a greater risk of morbidity and mortality in men. J Orthopedic Trauma 2005;19:29-35.

Gallagher JC, Kable WT, Goldgar D. Effect of progestin therapy on cortical and trabecular bone: comparison with estrogen. The Am J of Medicine 1990;90:171-8.

International Society of Clinical Densitometry. www.iscd.org.

Kalkwarf HJ, Specker BL, Bianchi DC, Ranz J, Ho M. The effect of calcium supplementation on bone density during lactation and after weaning. NEJM 1997;337:523-8.

Marshall D, Johnell O, Wedel H. Meta-analysis of how well measures of bone mineral density predict occurrence of osteoporotic fractures. BMJ 1996;312:1254-59.

McClung M, Clemmesen B, Daifotis A, Gilchrist NL, Eisman J, Weinstein RS etal. Alendronate prevents postmenopausal bone loss in women without osteoporosis. Annuals of Internal Medicine 1998;128:253-61.

Michaelsson K, Baron JA, Farahmand BY, PerssonI, Ljunghall S. Oral contraceptive use and risk of hip fracture: a case-control study. Lancet 1999;353:1481-4.

Melton LJ. Hip fractures: a worldwide problem today and tomorrow. Bone 1993;14:S1-8.

Ott S. Fracture Risk Calculator. http://courses.washington.edu/bonephys/opTZconvert.html (accessed January 13, 2005).

Polatti F, Capuzzo E, Viazzo F, Colleoni R, Klersy C. Bone mineral changes during and after lactation. Obstet Gynecol 1999;94:52-6.

Prior JC. Progesterone as a bone trophic hormone. Endocrine Reviews 1990;11:386-98.

Scholes D, LaCroix AZ, Ichikawa LE, Barlow WE, Ott SM. Injectable hormone contraception and bone density: results from a prospective study. Epidemiology 2002;13:581-7.

Scholes D, LaCroix AZ, Ichikawa LE, Barlow WE, Ott SM. Change in bone density among adolescent women using and discontinuing depot medroxyprogesterone actetate contraception. Archives of Pediatrics and Adolescent Medicine 2005;159:139-144.

Sinigaglia L, Varenna M, Binelli L, Gallazzi M, Calori G, Ranza R. Effect of lactation on postmenopausal bone mineral density of the lumbar spine. J Reprod Med 1996;41:439-43.

Surgeon General. Bone health and osteoporosis: a report of the surgeon general (2004). Chapter 4: The frequency of bone disease. http://surgeongeneral.gov/library/bonehealth/content.html (February 7, 2005)

Stevens JA, Olson S. Reducing falls and resulting hip fractures among older women. MMWR Recomm Rep 2000;49:3-12.

Wilkin TJ. Changing perceptions in osteoporosis. BMJ 1999;318:862-4

World Health Organization. Medical Eligibility Criteria for Contraceptive Use 3rd Edition 2004. Progestogen only contraceptives. http://www.who.int/reproductive-health/publications/MEC_3 (Accessed February 5, 2005).

Cholesterol Screening

The following section applies only to women obtaining their medical care through the Family Planning Program. These do not replace primary care guidelines or dictate management for primary care patients.

Lipid Panel Testing

Indications

In premenopausal women without a hereditary, hyperlipidemia family history (in which case earlier and more frequent lipid testing is advised), beginning at age 20 obtaining a lipid profile every 5 years is an adequate screening recommendation according to the National Cholesterol Education Program (JAMA 2001; 285: 2486-2500).

Education

All clients should be encouraged to maintain a normal weight, exercise regularly - especially aerobic activities, eat a low fat diet, and not use tobacco. Preventing obesity will decrease the risk of diabetes and cardiovascular disease.

Who to Test

- A fasting HDL, triglyceride, and LDL level (lipid panel) should be offered to women 21 years of age or older, with **no prior lipid testing,** and a first degree relative with a history of a stroke under age 50, MI, angina, coronary bypass or other evidence of coronary atherosclerosis under age 65 for female relatives or 55 for male relatives.
- Women over the age of 45 may especially benefit from lipid testing to help them make decisions about their risk for CVD as they approach menopause.

Preparation for Lipid Testing

- Fasting for 12 hours. Water is permitted.
- Avoid testing during pregnancy and for at least nine months afterwards.

What Test?

Use venous blood and order the contracted lipid panel test (total cholesterol, HDL, LDL, triglycerides).

Results

Remember that there is a wide laboratory variation in cholesterol test results. A variation of 5% is expected and a variation of 10% is frequent. Thus a cholesterol level of 200 mg/dL is really somewhere between 180 and 220 mg/dL. This is important in comparing results of repeat tests.

Management

- Discuss lipid panel results with client. The client can be provided with the Lipid Profile Results Handout.

- Discuss additional cardiovascular risk factors present that client can modify and change. If client has two or more of the below risk factors, their risk for CVD is increased:
  - ♦ Cigarette smoking
  - ♦ Family history of definite myocardial infarction or sudden death in a first degree relative before age 55 years if male or before age 65 years if female.
  - ♦ Hypertension (persistent blood pressure over 140/90 or using antihypertensive medication)
  - ♦ Diabetes mellitus
  - ♦ If HDL greater than 60 then this helps protect against CVD and the woman can subtract one risk factor.
  - ♦ Age greater than 55 in women.

- **Adult Lipid Panel Result Classification** According to JAMA article (JAMA 2001; 285:2487).

LDL cholesterol	
<100	Optimal
100-129	Near or above optimal
130-159	Borderline high
160-189	High
≥190	Very high
Total cholesterol	
<200	Desirable
200-239	Borderline high
≥240	High
HDL cholesterol	
<40	Low
≥60	High

- **Referral** for possible treatment if fasting lipid results are any of the following:
  - ♦ **Fasting Triglycerides over 250**.
  - ♦ **LDL over 160 mg/dL**
  - ♦ **HDL Cholesterol below 30 mg/dL in women**

- Repeat Lipid panel testing every 5 years if the client chooses. There is no reason to repeat sooner because asymptomatic premenopausal women rarely require aggressive lipid lowering treatment. If the client was referred for evaluation, then the follow-up lipid testing needs to be done at the referral site and not through the family planning program.

- Rarely will the lipid test results change a contraceptive method choice since current low dose COC pills do not change lipids significantly.

- Remember if low HDL (less than 40), DMPA users need to sign the Birth Control Method Specific Informed Consent Form because DMPA use can effect HDL levels in some women.

- Clients can be given the Preventative Health Documentation Card to track their results and to encourage attention to their health.

Northwest Lipid Clinic Referrals

This clinic often conducts studies and can provide counseling and testing for individuals with grossly abnormal lipid values. The clinic number is 206-341-4400. They are located at Harborview but do not provide free care unless it is within a study.

Colon Cancer Screening

Colon Cancer Overview

Colorectal cancer develops in the lining of the large intestine. At the present time, colon cancer is the second most common cause of a cancer related death in the United States with approximately 57,000 Americans dying each year (NEJM 2002;346:40-44 and Ann Intern Med 2002;137:96-104). Approximately 155,000 new cases of colon cancer are diagnosed annually and the survival rate is only slightly higher than 50%.

If colon cancer is detected early, it can be cured. If pre-malignant polyps are removed, up to 80% of colon cancer deaths can be prevented. It is thus cost effective to perform colon cancer screening at the age of 50 in individuals with average risk for colon cancer. Colon cancer increases with age and men and women have equal chances of getting it.

Risk Factors

The average individual's lifetime risk of developing colorectal cancer is only about 2%. An individual with a first degree relative diagnosed with colorectal cancer has a 6% chance of developing colon cancer in their lifetime. And if the first degree relative developed cancer before the age 45 the risk for the relative increases to 10%. In these families with a history of colon, breast, or ovarian cancers or abnormalities like multiple polyps of the colon; referral to primary care for earlier and more intensive screening should be recommended. Most, 85%, of individuals diagnosed with colon cancer do not have a family history or an inherited genetic defect.

All patients should be aware that risk factors for colon cancer include the following: age, obesity, sedentary life style, smoking, and excessive alcohol or red meat consumption. Deoxycholic acid, found in bile, appears to have carcinogenic properties and possibly is one mechanism. At 50, 1 in 2,000 people per year will develop this cancer. After age 65 it increases to 3 in 1,000. Polyps on the colon and rectum are fairly common in people over 50. African Americans are at higher risk of colon cancer and increased mortality when diagnosed. The highest risks are for men of African descent. Women with a history of cancer of the ovary, uterus or breast have a slight increase of developing colorectal cancer. Smoking may also increase the risk, and drinking alcohol regularly seems to have an additive effect. However, nonsmokers who drink and have diets high in fruits and vegetables do not seem to be at increased risk. Crohns disease and ulcerative colitis have been linked to an increase risk for colorectal cancer. Patients with either one of these illnesses who have a family history of colorectal cancer are at a 5-fold increased risk.

Colon Cancer Prevention

Diet may play a role in preventing colon cancer. Many of the comments listed below are not widely proven or accepted as causative but for patients making dietary choices it may be prudent to recommend the following advice.

Diets high in fruits and vegetables and low in meat are thought to be protective against many cancers. Phytochemicals such as careotenoids or organosulfur compounds in vegetables and fruits may have cancer fighting properties. They are typically found in foods that are dark-green, red, yellow-orange and blue in color (cabbage, carrots, or garlic and onions). Contrary to belief, fiber has not been found to have a protective effect on preventing colon cancer. Fats found in animal fat may increase the risk for colon cancer. Olive oil, may reduce levels of deoxycholic acid, and therefore, may be protective. Grilled or fried foods, particularly fats can increase risk. Fermented milk, which contains acidophilus may help protect against colon cancer.

The higher the intake of sugar and calories the greater the risk for developing colon cancer. Some studies have found that drinking 4 or more cups of coffee per day is associated with a lower risk for developing colorectal cancer. Green tea may have some benefit. Selenium is a trace element in meat, whole grains, egg yolks, fish and Brazil nuts and may reduce risk. The use of aspirin or other NSAIDS has been associated with reduced risk and hormone replacement therapy (HRT) continues to show that estrogen protects against colon cancer. Birth control pills are being investigated to see if they reduce a woman's risk of developing colorectal cancer. And last but not least, regular to moderate exercise (30 minute daily jog or 60 minute daily walk) reduces the risk of many chronic diseases and colon cancer as well.

Colon Cancer Symptoms

It is known as a "silent" disease because many people do not develop symptoms until the cancer is difficult to cure.

The following are some of the symptoms that may occur:

- Diarrhea, constipation, or feeling that the bowel does not empty completely.
- Blood in the stools
- Stools that are narrower than usual
- General abdominal discomfort (increase gas pains, bloating, fullness and/or cramps.
- Weight loss with no known reason
- Anemia
- Constant tiredness
- Vomiting

Colon Cancer Screening

1. Start screening at age 50 if there are no other risk factors. This has been shown to be more cost effective than not providing screening. Although exactly what test or combinations of tests for what duration is not known.

2. Fecal Occult Blood Testing (FOBT) of three stool samples should be done yearly at a minimum beginning at age 50. In addition a flexible sigmoid done every 5 years may provide additional benefit although this is controversial and was not the

recommendation by the US Preventative Services Task Force in 1996 but was recommended by the American Cancer Society and the American College of Gastroenterology. Because the flexible sigmoid only visualizes the left colon and will miss half of the polyps any negative study with positive stool blood or abnormal result should be followed with colonoscopy. Colonoscopy is more sensitive for detecting colon cancer but has a higher rate of complications and cost. But it is now being recommended for any high-risk and older patients.

3. Individuals with risk factors (personal or first degree relative history of colon cancer or adenomators polyps, a polyposis syndrome, or chronic inflammatory bowel syndrome) should be referred to primary care to make appropriate screening recommendations.

Fecal Occult Blood Testing

A test for fecal occult blood should be done annually on three serially obtained samples of stool. The testing cards are sent home with the patient and one card is used each day. Do not collect the samples when on menses or if any active rectal or vaginal bleeding three days prior to or during testing. The stool should be sampled from the center of the stool mass using a clean collection device to smear a small sample on the card. There are two spots on the card so two entirely different areas of the stool can be sampled, preferably one from the beginning and one from the end of the stool. These cards are then returned to the clinic for rehydration or testing with the test reagent. It is advised, to decrease false positive results that patients avoid consuming red meat, horseradish, certain raw vegetables (broccoli, turnips, cabbage, cauliflower, or radishes), aspirin, any NSAIDS, and any vitamin C 2 weeks before and during stool collection. If any one of the tests is positive for occult blood then the patient should be referred for evaluation because the chance of an adenoma or cancer is 17 % to 46%. The need for a digital anal exam has not been proven as necessary for colon cancer screening but would be a part of any evaluation or work up of rectal bleeding, suspicious symptom (such as change in stool caliber) or a positive fecal occult blood test.

Diabetes Screening

The following section applies only to women obtaining their medical care through the Family Planning Program. These do not replace primary care guidelines or dictate management for primary care patients. These recommendations are taken from the American Diabetes Association and the entire text can be viewed at: http://journal.diabetes.org.

Fasting Glucose Testing

Indications

The prevalence of diabetes in the US is thought to be about 12%. Unfortunately, many people go undiagnosed until late with almost ½ not diagnosed until 10 years from the onset of the disease. Early diagnosis of diabetes can decrease the damage to end organs like the kidney and eyes so it is important to offer fasting glucose testing for certain clients. The Diabetes Screening Handout can be given to clients to provide more information about diabetes and diabetes testing.

The following women should be offered testing every 3 years according to the American Diabetes Association. Testing is done by fingerstick or venous blood draws for fasting glucose testing using an on-site glucose meter.

- Age 45 or older
- Obesity – BMI ≥ 30 at any age increases the risk for diabetes
- Hypertensive
- Has documented low HDL (less than 40) or triglycerides greater than 250.
- Known PCOS or androgen disorder
- Women with a history of gestational diabetes need screening with a fasting blood sugar one year after the pregnancy has ended. If they have a normal result, they will then need to be tested every three years. The women should also be strongly advised to have a normal body weight, perform aerobic exercise, and prevent future pregnancies, as pregnancy greatly increases her risk of progressing into true diabetes.

Also every 3 years IF AGE GREATER THAN 30 and has one of the following:

- Overweight (BMI greater than 26)
- First degree relative with diabetes
- Ethnicity with increased diabetes risk: African American, Asian American/Pacific Islander, Latino, or Native American.
- Gave birth to a baby weighing 9 or more pounds

According to the American Diabetes Association, a fasting venous blood sugar over 125 mg/dL or a non-fasting random blood sugar > 200 mg/dL in a patient with symptoms of diabetes (polyuria, polydipsia and unexplained weight loss) meet the criteria for a diagnosis of diabetes. Anyone with readings above these levels should be referred to their primary care provider for further evaluation.

Anyone with a fasting venous blood sugar over 110 mg/dL on a prior screening test who has not been further evaluated for diabetes should have a repeat fasting glucose test within six months. This can be done with a fingerstick or capillary blood test in the Family Planning Program as we are only performing a screening test.

Capillary glucose results are 15% lower than venous fasting blood glucose (FBG)
If capillary or fingerstick is used for the blood glucose test, then the glucose results are 10-15% lower than a venous puncture for the glucose test. So, if the result is marginal or abnormal, one can multiply the result by 0.15 to add 15% to increase the value.

Summary of Fasting Capillary Glucose (FBG) Test Results

- A result of less than 100 (<110 mg/dL if venous) is normal.
- 100-109 ($\geq$ 110 and < 126 mg/dL if venous) is impaired and should be repeated in 6 months.
- 110 ($\geq$ 126 mg/dL if venous) and was fasting necessitates referral to primary care provider for possible diabetes.
- If result is 140 or above an immediate referral is indicated.
- If result is non-fasting and over 175 than an immediate referral is indicated.

Hypertension Screening

Who to Test
Blood pressure should be assessed a minimum of once a year for all women. Pregnant women should have a blood pressure measurement with every visit. Women just beginning estrogen-containing methods should have a blood pressure evaluation after 3 months of use because there are rare individuals who are sensitive to estrogen and with estrogen use became hypertensive.

Definitions
Normal blood pressure is under 120/80mm mercury pressure. **Mild** hypertension is defined as three or more readings on separate occasions over a 4 to 8 week period of time of a diastolic blood pressure between 90 and 99 mm. **Moderate** hypertension is when the diastolic blood pressure continues between 100 and 109 mm. **Severe** hypertension is sustained diastolic blood pressure greater than or equal to 110 mm.

Classification of Blood Pressure for Adults Age 18 and Older*
(Reprinted from the 7th report of the National Committee on Prevention, Detection, and Treatment of High Blood Pressure, JAMA 2003; 289:2560)

Category	Systolic (mm Hg)		Diastolic (mm Hg)
Optimal†	<120	and	<80
Prehypertension	<120-138	and	<80-89
Hypertension‡			
Stage 1	140-159	or	90-99
Stage 2	≥160	or	≥100

*Not taking antihypertensive drugs or acutely ill. When systolic and diastolic blood pressure fall into different categories, the higher category should be selected to classify the individual's blood pressure status. In addition to classifying stages of hypertension on the basis of average blood pressure levels, clinicians should specify presence or absence of target organ disease and additional risk factors. This specificity is important for risk classification and treatment.
† Optimal blood pressure with respect to cardiovascular risk is below 120/80 mm Hg. However, unusually low readings should be evaluated for clinical significance.
‡ Based on the average of two or more readings taken at each of two or more visits after initial screening.

Elevated Blood Pressure
Blood pressure may be temporarily elevated by many factors. It is essential that BP be repeated under conditions free of these factors before referral to a physician or taking the client off estrogen methods.

Blood pressure may be temporarily elevated (especially systolic) by:

- Exercise
- Pain
- Emotion
- Disease - endocrine disease, CNS disease, etc.
- Drugs - pressor agents, asthma medications, nose or eye drops, cold or sinus pills, diet pills, caffeine, hormones, etc.
- Smoking
- Alcohol
- Noisy or crowded environments
- Recent food consumption
- Full bladder

How to Take a Blood Pressure

The direct method to measure arterial pressure involves placing a catheter directly into an artery. This is not usually done. The indirect method is when external pressure is applied to the overlying tissue using a sphygmomanometer and the compression necessary to occlude the artery is assumed to be equal to the intra-arterial pressure. The arm cuff should be at least 10 cm wide and if the arm is large a wider cuff is needed or the pressure readings will be falsely elevated. A rubber pump is used to inflate the cuff and a manometer is used to measure the applied air pressure in mm of mercury. The client should be sitting, preferably after a period of rest. Bare the arm and affix the cuff snugly and smoothly so the distal margin of the cuff is at least 3 cm proximal to the antecubital fossa. Then rest the supinated arm on the table with the antecubital fossa at the approximate level of the heart. Palpate for the location of the brachial arterial pulse; it is usually medial to the insertion of the biceps tendon. Inflate the cuff to the pressure of 30 mm above the point where the palpable pulse disappears. Open the valve slowly so the pressure drops gradually. From this point on the use of the stethoscope to auscultate and to hear the return of the pulse. Press the bell of the stethoscope lightly over the brachial artery and note the pressure reading at which sounds first become audible: this is the systolic pressure. As deflation of the cuff proceeds, the sounds become louder and then become muffled; take a reading at the point of muffling and again at the point when the sounds disappear. The pressure at which the sounds disappear is the accepted definition of the diastolic pressure. It is often advised to repeat the entire procedure a second time particularly when learning and being careful to completely deflate the cuff between measurements.

Management

- If blood pressure is below 80 mm diastolic, no further action is required.
- If diastolic blood pressure is elevated (85 mm or above), have the client rest in the clinic for 10 to 20 minutes. Repeat blood pressure in both arms, using correct technique and appropriate cuff size. Document the measurements taken in the progress notes. If blood pressure persists ≥ 80 mm diastolic, give advice about low sodium diets, relaxation, stress management, medications (diet drugs), smoking, and low-calorie diets if appropriate. Advise the client to visit the local fire station or pharmacy to have her blood pressure checked 1 to 2 times a week for the next month and to return with the Preventative Health Documentation Card documenting her blood pressure. If sustained diastolic pressures of 80 or above are recorded, refer the client to her primary care provider because early treatment of hypertension is important and it can help prevent cardiopulmonary disease like heart failure.
- If blood pressure is ≥ 100 mm diastolic or over 160 mm systolic, refer that week for primary care appointment and treatment. If this same client has a headache, visual changes, or this is a substantial increase over past blood pressure readings, then refer emergently as this may be an impending stroke or other serious condition.
- If blood pressure is ≥ 110 diastolic or ≥ 180 systolic, refer emergently to avoid a stroke.
- If client is diagnosed with hypertension and she is taking an estrogen-containing pill, she needs to be counseled about the possibility of the estrogen worsening her hypertension. If her blood pressure stabilizes and she wishes to continue on the COC pill, she needs to sign the Birth Control Method Specific Informed Consent Form and be switched to the lowest estrogen dose pill possible. If her blood pressure continues to be elevated due to no treatment or in spite of treatment, then estrogen-containing methods are contraindicated.

Hypothyroid Screening

The following section applies only to women obtaining their medical care through the Family Planning Program. These do not replace primary care guidelines or dictate management for primary care patients.

Hypothyroid Screening

Who to Test?

- Hypothyroidism, especially in the early stages can present with nonspecific symptoms and can include the following: cold intolerance, weight gain, hair loss, or dry skin. Refer or possibly send the TSH, but even if normal result, consider referral to primary care provider or an endocrine clinic. Even if a woman is hypothyroid evidenced by an elevated TSH, she may receive hormonal contraceptives.
- Clients with amenorrhea greater than 6 months with no etiology known.

Send only the TSH test and not the entire thyroid panel. The entire thyroid panel is for evaluating hyperthyroidism. A primary care or endocrine provider should do that evaluation. Women to consider referral for hyperthyroidism include women with a goiter, or women with symptoms of hot flashes, weight loss, and a pulse greater than a 100 should be present in clinically significant hyperthyroidism. Refer patients that need thyroid testing during pregnancy or patients already taking thyroid medications.

Obesity

Americans have an increasing problem with obesity. In 1980, only 16% of women had a BMI ≥ 30, and in 1994 this increased to 24.9% of US women. It is estimated ¼ of Americans are obese and obesity can be directly responsible for many serious chronic diseases like hypertension, diabetes, osteoarthritis, sleep apnea, and anovulation infertility. Clinical obesity can reduce one's life expectancy by 5 to 13 years *(JAMA 2003; 289:187-93)*.

Healthy Weight Table from US FDA & DHHS (not as accurate as BMI described at end of this section) These guidelines make allowances for expected weight gain as people grow older. Both sexes are combined on one table. The higher weights generally apply to men with the lower applying especially to women. Distribution of weight is important since lower (hips) body fat is less harmful than central (belly) body fat.

HEIGHT	19 TO 34 YEARS	35 OR MORE YEARS
5' 0"	97 TO 128 #	108 TO 138 #
5' 1"	101 TO 132 #	111 TO 143 #
5' 2"	104 TO 137 #	115 TO 148 #
5' 3"	107 TO 141 #	119 TO 152 #
5' 4"	111 TO 141 #	122 TO 157 #
5' 5"	114 TO 150 #	126 TO 162 #
5' 6"	118 TO 155 #	130 TO 167 #
5' 7"	121 TO 160 #	134 TO 172 #
5' 8"	125 TO 164 #	138 TO 178 #
5' 9"	129 TO 169 #	142 TO 183 #
5' 10"	132 TO 174 #	146 TO 188 #
5' 11"	136 TO 179 #	151 TO 194 #
6' 0"	140 TO 184 #	155 TO 199 #
6' 1"	144 TO 189 #	159 TO 205 #
6' 2"	148 TO 195 #	164 TO 210 #
6' 3"	152 TO 200 #	168 TO 216 #
6' 4"	156 TO 205 #	173 TO 222 #

Evaluation

Assess motivation for weight loss or change. Does the client perceive the weight as a problem? Evaluate the medical history for special problems that might be exacerbated by weight such as heart disease, hypertension, or diabetes. Take a diet history, including 24-hour recall. Ask about use of diet drugs, as these can be harmful and can cause hypertension. Evaluate the level of physical activity and exercise. Ask about vomiting, purging, diuretics, or unusual food habits.

Determine if the weight is outside the normal range on the weight table. Weight reduction may be encouraged for anyone over healthy weight. Discourage weight loss if client is at the low end of the range or below healthy weight.

Management

- Provide supportive counseling and introductory information.
- Provide the client with information on weight control including: four food groups, dietician and other referral sources, low fat diet information, self-help groups, and medical referral if morbidly obese because if insured, may be able to pay for obesity treatment.
- Encourage regular aerobic exercise 30 to 45 minutes daily. No longer is 3 times a week enough to gain maximal benefit.
- Refer persons significantly below the weight range for possible anorexia evaluation and treatment. Persons who induce vomiting or have evidence of bulimia need referral and treatment.
- Calculate BMI or read off the **Body Mass Index (BMI) Chart** (also attached below) for the client if possible. BMI = weight in kg divided by the height in meters which is squared, kg/m^2.
- Persons who have a BMI of 26 to 29 are considered overweight and if greater than 29 are considered obese and need treatment.
- If BMI is greater than 26 and the client is over age 35, they should have blood pressure testing at every visit and a fasting glucose every 3 years by fingerstick because the risk for diabetes increases with obesity.
- The **Preventative Health Documentation Card** can be given to clients to monitor their weight, blood pressure, and cholesterol levels.

Body Mass Index (BMI) Table

Body mass index is weight (in kilograms) divided by height (in meters) squared. Locate the height along the left-hand column. Then slide your finger to the right along that row until you come to the number closes to the weight. At the top of that column is the BMI. For instance, if you are 5'5" and 140 pounds, your BMI is 23. If you are 6' tall and 210 pounds, your BMI is 29.

If the height or weight isn't listed, or it you want to compute the exact BMI, here's a shortcut: Multiply the weight (in pounds) by 703 and then divide it by the height (in inches) squared.

		19	20	21	22	23	24	25	26	27	28	29	30	35	40
							WEIGHT (pounds)								
	4'10"	91	96	100	105	110	115	119	124	129	134	138	143	167	191
	4'11"	94	99	104	109	114	119	124	128	133	138	143	148	173	198
	5'0"	97	102	107	112	118	123	128	133	138	143	148	153	179	204
	5'1"	100	106	111	116	122	127	132	137	143	148	153	158	185	211
	5'2"	104	109	115	120	126	131	136	142	147	153	158	164	191	218
H	5'3"	107	113	118	124	130	135	141	146	152	158	163	169	197	225
E	5'4"	110	116	122	128	134	140	145	151	157	163	169	174	204	232
I	5'5"	114	120	126	132	138	144	150	156	162	168	174	180	210	240
G	5'6"	118	124	130	136	142	148	155	161	167	173	179	186	216	247
H	5'7"	121	127	134	140	146	153	159	166	172	178	185	191	223	255
T	5'8"	125	131	138	144	151	158	164	171	177	184	190	197	230	262
	5'9"	128	135	142	149	155	162	169	176	182	189	196	203	236	270
	5'10"	132	139	146	153	160	167	174	181	188	195	202	207	243	278
	5'11"	136	143	150	157	165	172	179	186	193	200	208	215	250	286
	6'0"	140	147	154	162	169	177	184	191	199	206	213	221	258	294
	6'1"	144	151	159	166	174	182	189	197	204	212	219	227	265	302
	6'2"	148	155	163	171	179	186	194	202	210	218	225	233	272	311
	6'3"	152	160	168	176	184	192	200	208	216	224	232	240	279	319
	6'4"	156	164	172	180	189	197	205	213	221	230	238	246	287	328

Tobacco Cessation

A. Introduction

Tobacco is the single greatest cause of disease and premature death in America today. The societal costs of tobacco-related death and disease approach $100 billion each year. More than 70 percent of all current smokers have expressed a desire to stop smoking and if they successfully quit, the result will be both immediate and long-term health improvements. Patients who use tobacco and are willing to quit should be treated using the "5 A's" (Ask, Advise, Assess, Assist and Arrange). Patients who use tobacco but are unwilling to quit at this time should be treated with the "5 R's" (Relevance, Risks, Rewards, Roadblocks and Repetition). The State Tobacco Quit Line at 877-270-STOP (7867) is toll free and is a resource for clients.

B. Identification and Assessment of Tobacco Use

1. ***Ask*** – Systematically identify all tobacco users at every visit. Stickers indicating use or nonuse of Tobacco and business cards with contact information for the Quit Line can be ordered by phone from Whitney at 206-205-5818.

2. ***Advise*** – Strongly urge all tobacco users to quit. See Quick Reference Guide Table 2 for more information.

3. ***Assess*** – Determine willingness to make a quit attempt. See Quick Reference Guide Table 3 for more information.

4. ***Assist*** – Aid the patient in quitting

Nicotine Replacement Therapy
The nicotine patch is one of several first lines FDA approved pharmacotherapies for smoking cessation. The PHSKC Community Tobacco Cessation Program has received grant support for a limited supply of low cost nicotine patches. An Overview of this nicotine patch program is linked here. Use the Family Planning Tobacco Cessation Chart Note form and Nicotine Patch Consent for documentation. The Patient Self-Assessment to Determine Patch Dose and Patch Instruction Sheet are essential. Fax the Cessation Follow-up Fax Information Sheet so the program can be monitored.

a. Precautions/Contraindications:
- The nicotine patch is not indicated for use with pregnant or breastfeeding women.
- The most common side effects are local skin reaction, headache and insomnia.
- Patients should not use other nicotine containing products at the same time as the patch.
- The decision to use the nicotine patch should be made based on weighing the risks and benefits of it use versus smoking in patients with coronary artery disease, arrhythmia, hypertension, diabetes, ulcers, liver, thyroid or kidney diseases.

b. Instructions for use

- Help the patient with a quit plan:
  Patients who express a willingness to quit smoking should set a quit date within the next two weeks. They should also be advised to inform family, friends and co-workers about their decision to quit and request their understanding and support. Provide information in anticipation of challenges to the quit attempt. Advise the patient to remove all tobacco products from their environment and avoid smoking in places where they spend a lot of time prior to the quit date. Consult Quick Reference Guide Table 4 for additional information.

- Provide nicotine patches:
  Determine the appropriate starting dose using the Fagerstrom Test for Nicotine Dependence. The recommended course of treatment is as follows:

  1. Patients starting with the 21 mg patch should use this for four (4) weeks followed by the 14 mg patch for two (2) weeks and the 7 mg patch for two (2) weeks.
  2. Patients staring with the 14 mg patch should use this for six (6) weeks followed by the 7 mg patch for two (2) weeks.
  3. Instruct patients to cut the 14mg patches in two when they are on the 7mg dose.

Provide the patient with a four-week supply free of charge along with instructions on how to obtain additional supplies. Supplies will be available for up to a maximum of eight weeks of treatment through the PHSKC Community Tobacco Cessation Program.

Provide and/or arrange for counseling.
Site Tobacco Cessation Champions will work with the PHSKC Community Tobacco Cessation Program Liaison to ensure that all patients who receive nicotine patches through the PHSKC Community Tobacco Cessation Program also receive appropriate counseling and follow-up.

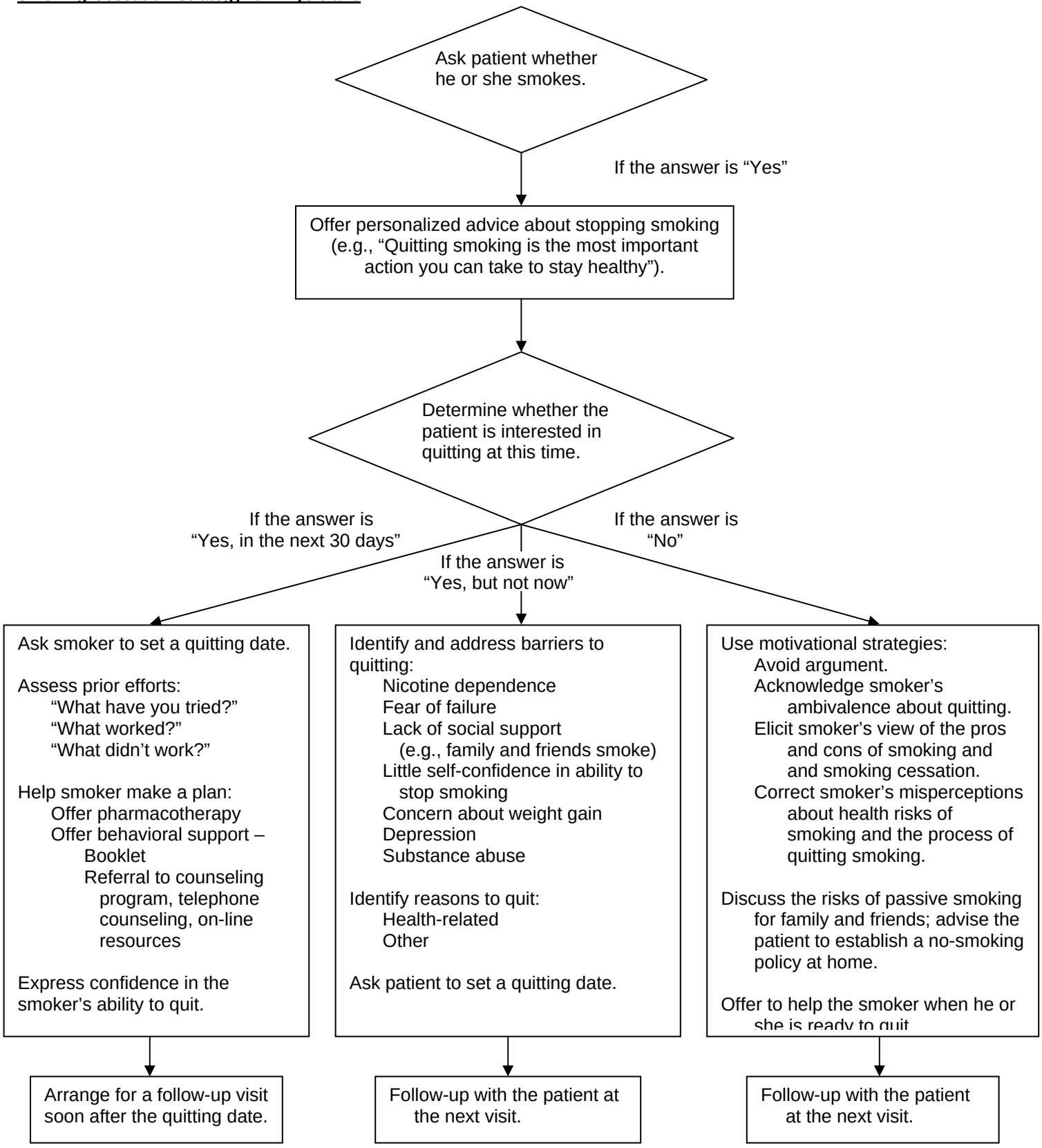
5. ***Arrange*** – Schedule follow-up contact

Complete a demographics form on all clients who receive the nicotine patch and give this to your site Tobacco Cessation Champion. Be sure to indicate what level of follow up is needed.

Note: Patients who do not wish to quit smoking at this time should receive information on the "5 R's" and may be referred to your site Tobacco Cessation Champion for assistance with this follow up.

Source: Fiore MC, Bailey WC, Cohen SJ, et. Al. *Treating Tobacco Use and Dependence.* Quick Reference Guide for Clinicians. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service. October 2000.

Smoking-Cessation Strategy for Physicians



This strategy uses the five steps (the "five A's") recommended in Public Health Service guidelines: ask, advise, assess, assist, and arrange follow-up.

Source: N Engl J Med, Vol. 346, No. 7 February 14, 2002 www.nejm.org

Drugs Used For Smoking Cessation

Product	Daily Dose	Duration of Treatment	Common Side Effects	Advantages	Disadvantages
Nicotine-replacement therapy					
Transdermal patch* 24 hr (e.g., Nicoderm CQ)	7-, 14-, or 21-mg patch worn for 24 hr†	8 wk	Skin irriation, insomnia	Provides steady level of nicotine; easy to use; unobtrusive; available without prescription	User cannot adjust dose if craving occurs; nicotine released more slowly than in other products
16 hr (e.g., Nicotrol)	15-mg patch worn for 16 hr	8 wk			
Nicotine polacrilex gum (Nicorette)* 2 mg (<25 cigarettes/day) 4 mg (≥ 25 cigarettes/day)	1 piece/hr (<24 pieces/day)	8-12 wk	Mouth irritation, sore jaw, dyspepsia, hiccups	User controls dose; oral substitute for cigarettes; available without prescription	Proper chewing technique needed to avoid side effects and achieve efficacy‡; user cannot eat or drink while chewing the gum; can damage dental work; difficult for denture wearers to use
Vapor inhaler (Nicotrol Inhaler)*	6-16 cartridges/day (delivered dose, 4 mg/cartridge)	3-6 mo	Mouth and throat irritation, cough	User controls dose; hand-to-mouth substitute for cigarettes	Frequent puffing needed; device visible when used
Nasal spray (Nicotrol NS)*	1-2 doses/hr (1 mg total; 0.5 mg in each nostril) (maximum, 40 mg/day)	3-6 mo	Nasal irritation; sneezing, cough, teary eyes	User controls dose; offers most rapid delivery of nicotine and the highest nicotine levels of all nicotine-replacement products	Most irritating nicotine-replacement product to use§ ; device visible when used
Non-nicotine therapy					
Sustained-release bupropion (Zybanor Wellbutrin SR)*	150 mg/day for 3 days, then 150 mg twice a day¶	7-12 wk 9up to 6 mo to maintain abstinence)	Insomnia, dry mouth, agitation	Easy to use (pill), no exposure to nicotine	Increases risk of seizure (≤ 0.1 percent)
Nortriptylin‖	75-100 mg/day**	12 wk	Dry mouth, sedation, dizziness	Easy to use (pill), no exposure to nicotine	Side effects common; should be used cautiously in patients with coronary heart disease
Clonidine‖	0.1-.3 mg twice a day	3-10 wk	Dry mouth, sedation, dizziness	No exposure to nicotine	Side effects limit use

*This product has been approved by the Food and Drug Administration as a smoking-cessation aid. The Public Health Service clinical guidelines also recommend it as a first-line drug for smoking cessation.

† The starting dose is 21 mg per day unless the smoker weighs less than 45.5 kg (100 lb) or smokes fewer than 10 cigarettes per day, in which case the starting dose is 14 mg per day. The starting dose should be maintained for four weeks, after which the dose should be decreased every week until it is stopped.

‡The user should chew the gum slowly until he or she experiences a distinct taste, indicating that nicotine is being released. The user should then place the gum between cheek and gum until the taste disappears to allow the nicotine to be absorbed through oral mucosa. The sequence should be repeated for 30 minutes before the gum is discarded. Acidic beverages (such as coffee and soft drinks) reduce the absorption of nicotine and should be avoided for 30 minutes before and during chewing.

§Tolerance develops to local side effects during the first week of use.

¶Treatment should be started one week before the quitting date.

‖This agent has not been approved by the Food and Drug Administration as a smoking-cessation aid. The Public Health Service clinical guidelines recommend it as a second-line drug for smoking cessation.

**Treatment should be started 10 to 28 days before the quitting date at a dose of 25 mg per day, and the dose should be increased as tolerated.

Source: N Engl J Med, Vol. 346, No. 7 February 14, 2002 www.nejm.org